



SEQUENCE LISTING

<110> FUJISE, KEN
YEH, EDWARD T.H.

<120> METHODS AND COMPOSITIONS RELATING TO FORTILIN, AN
ANTI-APOPTOTIC MOLECULE, AND MODULATORS OF FORTILIN

<130> UTSH:251US

<140> 10/021,753

<141> 2001-10-30

<150> 60/244,416

<151> 2000-10-30

<160> 12

<170> PatentIn Ver. 2.1

<210> 1

<211> 830

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (95)..(613)

<400> 1

cccccccgag cgccgctccg gctgcaccgc gctcgctccg agtttcaggc tcgtgctaag 60

ctagcgccgt cgctgtctcc cttcagtcgc catc atg att atc tac cgg gac ctc 115

Met Ile Ile Tyr Arg Asp Leu

1

5

atc agc cac gat gag atg ttc tcc gac atc tac aag atc cgg gag atc 163

Ile Ser His Asp Glu Met Phe Ser Asp Ile Tyr Lys Ile Arg Glu Ile

10

15

20

gcg gac ggg ttg tgc ctg gag gtg gag ggg aag atg gtc agt agg aca 211

Ala Asp Gly Leu Cys Leu Glu Val Glu Gly Lys Met Val Ser Arg Thr

25

30

35

gaa ggt aac att gat gac tcg ctc att ggt gga aat gcc tcc gct gaa 259

Glu Gly Asn Ile Asp Asp Ser Leu Ile Gly Gly Asn Ala Ser Ala Glu

40

45

50

55

ggc ccc gag ggc gaa ggt acc gaa agc aca gta atc act ggt gtc gat 307
 Gly Pro Glu Gly Glu Gly Thr Glu Ser Thr Val Ile Thr Gly Val Asp
 60 65 70

att gtc atg aac cat cac ctg cag gaa aca agt ttc aca aaa gaa gcc 355
 Ile Val Met Asn His His Leu Gln Glu Thr Ser Phe Thr Lys Glu Ala
 75 80 85

tac aag aag tac atc aaa gat tac atg aaa tca atc aaa ggg aaa ctt 403
 Tyr Lys Lys Tyr Ile Lys Asp Tyr Met Lys Ser Ile Lys Gly Lys Leu
 90 95 100

gaa gaa cag aga cca gaa aga gta aaa cct ttt atg aca ggg gct gca 451
 Glu Glu Gln Arg Pro Glu Arg Val Lys Pro Phe Met Thr Gly Ala Ala
 105 110 115

gaa caa atc aag cac atc ctt gct aat ttc aaa aac tac cag ttc ttt 499
 Glu Gln Ile Lys His Ile Leu Ala Asn Phe Lys Asn Tyr Gln Phe Phe
 120 125 130 135

att ggt gaa aac atg aat cca gat ggc atg gtt gct cta ttg gac tac 547
 Ile Gly Glu Asn Met Asn Pro Asp Gly Met Val Ala Leu Leu Asp Tyr
 140 145 150

cgt gag gat ggt gtg acc cca tat atg att ttc ttt aag gat ggt tta 595
 Arg Glu Asp Gly Val Thr Pro Tyr Met Ile Phe Phe Lys Asp Gly Leu
 155 160 165

gaa atg gaa aaa tgt taa caaatgtggc aattattttg gatctatcac 643
 Glu Met Glu Lys Cys
 170

ctgtcatcat aactggcttc tgcttgcacat ccacacaaca ccaggactta agacaaatgg 703

gactgatgtc atcttgagct cttcatttat tttgactgtg atttattttgg agtggaggca 763

ttgttttttaa gaaaaacatg tcatgtaggt tgtctaaaaa taaaatgcat ttaaactcat 823

ttgagag 830

<210> 2
 <211> 172
 <212> PRT
 <213> Homo sapiens

<400> 2
 Met Ile Ile Tyr Arg Asp Leu Ile Ser His Asp Glu Met Phe Ser Asp

1		5		10		15									
Ile	Tyr	Lys	Ile	Arg	Glu	Ile	Ala	Asp	Gly	Leu	Cys	Leu	Glu	Val	Glu
		20				25				30					
Gly	Lys	Met	Val	Ser	Arg	Thr	Glu	Gly	Asn	Ile	Asp	Asp	Ser	Leu	Ile
		35				40				45					
Gly	Gly	Asn	Ala	Ser	Ala	Glu	Gly	Pro	Glu	Gly	Glu	Gly	Thr	Glu	Ser
		50				55				60					
Thr	Val	Ile	Thr	Gly	Val	Asp	Ile	Val	Met	Asn	His	His	Leu	Gln	Glu
65				70				75					80		
Thr	Ser	Phe	Thr	Lys	Glu	Ala	Tyr	Lys	Lys	Tyr	Ile	Lys	Asp	Tyr	Met
		85				90				95					
Lys	Ser	Ile	Lys	Gly	Lys	Leu	Glu	Glu	Gln	Arg	Pro	Glu	Arg	Val	Lys
		100				105				110					
Pro	Phe	Met	Thr	Gly	Ala	Ala	Glu	Gln	Ile	Lys	His	Ile	Leu	Ala	Asn
		115				120				125					
Phe	Lys	Asn	Tyr	Gln	Phe	Phe	Ile	Gly	Glu	Asn	Met	Asn	Pro	Asp	Gly
		130			135			140							
Met	Val	Ala	Leu	Leu	Asp	Tyr	Arg	Glu	Asp	Gly	Val	Thr	Pro	Tyr	Met
145				150				155					160		
Ile	Phe	Phe	Lys	Asp	Gly	Leu	Glu	Met	Glu	Lys	Cys				
		165				170									

<210> 3
 <211> 172
 <212> PRT
 <213> Rabbit

<400> 3
Met Ile Ile Tyr Arg Asp Leu Ile Ser His Asp Glu Met Phe Ser Asp
1 5 10 15
Ile Tyr Lys Ile Arg Glu Ile Ala Gly Gly Leu Cys Leu Glu Val Glu
20 25 30
Gly Lys Met Val Ser Arg Thr Glu Gly Asn Ile Asp Asp Ser Leu Ile
35 40 45
Gly Gly Asn Ala Ser Ala Glu Gly Pro Glu Gly Glu Gly Thr Glu Ser
50 55 60
Thr Val Ile Thr Gly Val Asp Ile Val Met Asn His His Leu Gln Glu
65 70 75 80
Thr Ser Phe Thr Lys Glu Ala Tyr Lys Lys Tyr Ile Lys Asp Tyr Met
85 90 95

Lys Ser Ile Lys Gly Lys Leu Glu Glu Gln Arg Pro Glu Arg Val Lys
100 105 110

Pro Phe Met Thr Gly Ala Ala Glu Gln Ile Lys His Ile Leu Ala Asn
115 120 125

Phe Lys Asn Tyr Gln Phe Tyr Ile Gly Glu Asn Met Asn Pro Asp Gly
130 135 140

Met Val Ala Leu Leu Asp Tyr Arg Glu Asp Gly Val Thr Pro Phe Met
145 150 155 160

Ile Phe Phe Lys Asp Gly Leu Glu Met Glu Lys Cys
165 170

<210> 4

<211> 172

<212> PRT

<213> Mus musculus

<400> 4

Met Ile Ile Tyr Arg Asp Leu Ile Ser His Asp Glu Leu Phe Ser Asp
1 5 10 15

Ile Tyr Lys Ile Arg Glu Ile Ala Asp Gly Leu Cys Leu Glu Val Glu
20 25 30

Gly Lys Met Val Ser Arg Thr Glu Gly Ala Ile Asp Asp Ser Leu Ile
35 40 45

Gly Gly Asn Ala Ser Ala Glu Gly Pro Glu Gly Glu Gly Thr Glu Ser
50 55 60

Thr Val Val Thr Gly Val Asp Ile Val Met Asn His His Leu Gln Glu
65 70 75 80

Thr Ser Phe Thr Lys Glu Ala Tyr Lys Lys Tyr Ile Lys Asp Tyr Met
85 90 95

Lys Ser Leu Lys Gly Lys Leu Glu Glu Gln Lys Pro Glu Arg Val Lys
100 105 110

Pro Phe Met Thr Gly Ala Ala Glu Gln Ile Lys His Ile Leu Ala Asn
115 120 125

Phe Asn Asn Tyr Gln Phe Phe Ile Gly Glu Asn Met Asn Pro Asp Gly
130 135 140

Met Val Ala Leu Leu Asp Tyr Arg Glu Asp Gly Val Thr Pro Phe Met
145 150 155 160

Ile Phe Phe Lys Asp Gly Leu Glu Met Glu Lys Cys
165 170

<210> 5
<211> 172
<212> PRT
<213> Chicken

<400> 5
Met Ile Ile Tyr Arg Asp Cys Ile Ser Gln Asp Glu Met Phe Ser Asp
1 5 10 15

Ile Tyr Lys Ile Arg Glu Val Ala Asn Gly Leu Cys Leu Glu Val Glu
20 25 30

Gly Lys Met Val Thr Arg Thr Glu Gly Gln Ile Asp Asp Ser Leu Ile
35 40 45

Gly Gly Asn Ala Ser Ala Glu Gly Pro Glu Gly Glu Gly Thr Glu Ala
50 55 60

Thr Val Ile Thr Gly Val Asp Ile Val Ile Asn His His Leu Gln Glu
65 70 75 80

Thr Ser Phe Thr Lys Glu Ser Tyr Lys Lys Tyr Ile Lys Asp Tyr Met
85 90 95

Lys Ala Ile Lys Ala Arg Leu Glu Glu His Lys Pro Glu Arg Val Lys
100 105 110

Pro Phe Met Thr Gly Ala Ala Glu Gln Ile Lys His Ile Leu Ala Asn
115 120 125

Phe Lys Asn Tyr Gln Phe Phe Ile Gly Glu Asn Met Asn Pro Asp Gly
130 135 140

Met Val Ala Leu Leu Asp Phe Arg Glu Asp Gly Val Thr Pro Tyr Met
145 150 155 160

Ile Phe Phe Lys Asp Gly Leu Glu Ile Glu Lys Cys
165 170

<210> 6
<211> 172
<212> PRT
<213> D. Melanogaster

<400> 6
Met Lys Ile Tyr Lys Asp Ile Ile Thr Gly Asp Glu Met Phe Ala Asp
1 5 10 15
Thr Tyr Lys Met Lys Leu Val Asp Asp Val Ile Tyr Glu Val Tyr Gly
20 25 30
Lys Leu Ile Thr Arg Gln Gly Asp Asp Ile Lys Leu Glu Gly Ala Asn
35 40 45
Ala Ser Ala Glu Glu Ala Asp Glu Gly Thr Asp Ile Thr Ser Glu Ser
50 55 60
Gly Val Asp Val Val Leu Asn His Arg Leu Thr Glu Cys Phe Ala Phe
65 70 75 80
Gly Asp Lys Lys Ser Tyr Thr Leu Tyr Leu Lys Asp Tyr Met Lys Lys
85 90 95
Val Leu Ala Lys Leu Glu Glu Lys Ser Pro Asp Gln Val Asp Ile Phe
100 105 110
Lys Thr Asn Met Asn Lys Ala Met Lys Asp Ile Leu Gly Arg Phe Lys
115 120 125
Glu Leu Gln Phe Phe Thr Gly Glu Ser Met Asp Cys Asp Gly Met Val
130 135 140
Ala Leu Val Glu Tyr Arg Glu Ile Asn Gly Asp Ser Val Pro Val Leu
145 150 155 160
Met Phe Phe Lys His Gly Leu Glu Glu Glu Lys Cys
165 170

<210> 7
<211> 181
<212> PRT
<213> C. ELEGANS

<400> 7
Met Leu Ile Tyr Lys Asp Ile Ile Ser Asp Asp Glu Leu Ser Ser Asp
1 5 10 15

Ser Phe Pro Met Lys Leu Val Asp Asp Leu Val Tyr Glu Phe Lys Gly
20 25 30

Lys His Val Val Arg Lys Glu Gly Glu Ile Val Leu Ala Gly Ser Asn
35 40 45

Pro Ser Ala Glu Glu Gly Ala Glu Asp Asp Gly Ser Asp Glu His Val
50 55 60

Glu Arg Gly Ile Asp Ile Val Leu Asn His Lys Leu Val Glu Met Asn
65 70 75 80

Cys Tyr Glu Asp Ala Ser Met Phe Lys Ala Tyr Ile Lys Lys Phe Met
85 90 95

Lys Asn Val Ile Asp His Met Glu Lys Asn Asn Arg Asp Lys Ala Asp
100 105 110

Val Asp Ala Phe Lys Lys Lys Ile Gln Gly Trp Val Val Ser Leu Leu
115 120 125

Ala Lys Asp Arg Phe Lys Asn Leu Ala Phe Phe Ile Gly Glu Arg Ala
130 135 140

Ala Glu Gly Ala Glu Asn Gly Gln Val Ala Ile Ile Glu Tyr Arg Asp
145 150 155 160

Val Asp Gly Thr Glu Val Pro Thr Leu Met Leu Val Lys Glu Ala Ile
165 170 175

Ile Glu Glu Lys Cys
180

<210> 8

<211> 166

<212> PRT

<213> S. Cerevisiae

<400> 8

Met Ile Ile Tyr Lys Asp Ile Phe Ser Asn Asp Glu Leu Leu Ser Asp
1 5 10 15

Ala Tyr Asp Ala Lys Leu Val Asp Asp Val Ile Tyr Glu Ala Asp Cys
20 25 30

Ala Met Val Asn Val Gly Gly Asp Asn Ile Asp Ile Gly Ala Asn Pro

35	40	45
Ser Ala Glu Gly Gly Asp Asp Asp Val Glu Glu Gly Ala Glu Met Val		
50	55	60
Asn Asn Val Val His Ser Phe Arg Leu Gln Gln Thr Ala Phe Asp Lys		
65	70	75 80
Lys Ser Phe Leu Thr Tyr Ile Lys Gly Tyr Met Lys Ala Val Lys Ala		
	85	90 95
Lys Leu Gln Glu Thr Asn Pro Glu Glu Val Pro Lys Phe Glu Lys Gly		
	100	105 110
Ala Gln Thr Tyr Val Lys Lys Val Ile Gly Ser Phe Lys Asp Trp Glu		
	115	120 125
Phe Phe Thr Gly Glu Ser Met Asp Pro Asp Ala Met Val Val Met Leu		
	130	135 140
Asn Tyr Arg Glu Asp Gly Thr Thr Pro Phe Val Ala Ile Trp Lys His		
145	150	155 160
Gly Ile Val Glu Glu Lys		
	165	

<210> 9
 <211> 168
 <212> PRT
 <213> RICE

<400> 9
Met Leu Val Tyr Gln Asp Leu Leu Tyr Gly Asp Glu Leu Leu Ser Asp
1 5 10 15
Ser Phe Pro Tyr Arg Glu Ile Glu Asn Gly Ile Leu Trp Glu Val Asp
20 25 30
Gly Lys Trp Val Val Gln Gly Ala Ile Asp Val Asp Ile Gly Ala Asn
35 40 45
Pro Ser Ala Glu Gly Gly Gly Asp Asp Glu Gly Val Asp Asp Gln Ala
50 55 60
Val Lys Val Val Asp Ile Val Asp Thr Phe Arg Leu Gln Glu Gln Pro
65 70 75 80

Pro Phe Asp Lys Lys Gln Phe Val Thr Phe Met Lys Arg Tyr Ile Lys
85 90 95

Asn Leu Ser Ala Lys Leu Asp Ala Glu Lys Gln Glu Glu Phe Lys Phe
100 105 110

Asn Ile Glu Gly Ala Thr Lys Tyr Leu Leu Gly Lys Leu Lys Asp Leu
115 120 125

Gln Phe Phe Val Gly Glu Ser Met His Asp Asp Gly Gly Leu Val Phe
130 135 140

Ala Tyr Tyr Lys Asp Gly Ala Thr Asp Pro Thr Phe Leu Tyr Phe Ser
145 150 155 160

His Gly Leu Lys Glu Val Lys Cys
165

<210> 10

<211> 22

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
Peptide

<400> 10

Cys Lys Tyr Ile Lys Asp Tyr Met Lys Ser Ile Lys Gly Lys Leu Glu
1 5 10 15

Glu Gln Arg Pro Glu Arg
20

<210> 11

<211> 21

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
Peptide

<400> 11

Leu Glu Thr Leu Arg Arg Val Gly Asp Gly Val Gln Arg Asn His Glu
1 5 10 15

Thr Val Phe Gln Gly

20

<210> 12

<211> 18

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
Peptide

<400> 12

Arg	Asp	Leu	Ile	Ser	His	Asp	Glu	Met	Phe	Ser	Asp	Ile	Tyr	Lys	Ile
1				5				10						15	

Arg Glu